

System and Method For Estimating Clock Acceleration and Location Determination

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ABSTRACT OF THE DISCLOSURE

5 A method and a system for a location determination (a) acquire a first positioning
signal; (b) analyze the first positioning signal to provide an estimate of a clock signal
acceleration; (c) acquire additional positioning signals based on the estimate of the clock
signal acceleration; and (d) perform the location determination using the first positioning
10 signal and the additional positioning signals. The additional positioning signals may be
acquired using a stacking technique. The first positioning signal may be acquired based on a
signal-to-noise ratio exceeding a predetermined threshold. Clock signal acceleration may be
estimated using a constant clock signal acceleration parametric model, which may be
parabolic model based on a function that depends on the clock signal acceleration, a clock
Doppler and an initial phase value. Alternatively, grids of various granularity may be
15 searched clock signal acceleration space and a clock Doppler space in the vicinity of a clock
Doppler value measured in the acquisition of the first positioning signal.